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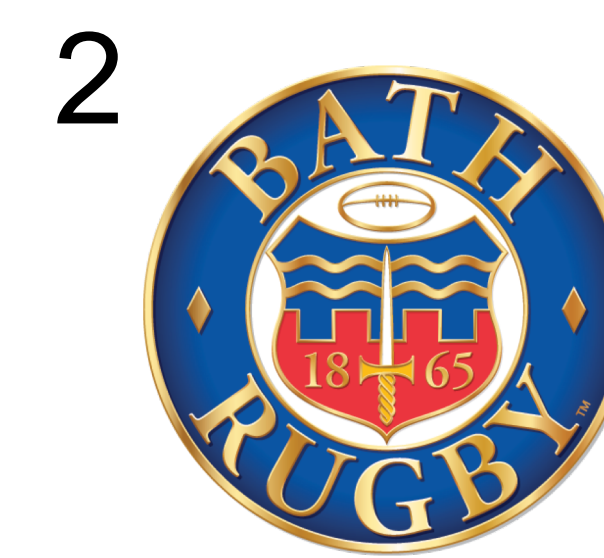
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Group and Individual Responses to a 4-Week Sled Intervention in Young Professional Rugby Union Players



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Introduction and Purpose

Eight weeks of heavy sled training is effective for improving sprint performance in team sport athletes (Morin et al., 2017). Shorter duration interventions, more suitable to preseason training blocks have yet to be investigated. We therefore aimed to assess the group and individual responses to a 4-week heavy sled intervention in rugby union players during a preseason training block.

Methods

Ten young male professional rugby union players (age 19.1 ± 1.2 years, body mass (BM) 98.1 ± 15.4 kg, height 184 ± 5 cm) completed a 4-week heavy sled programme in addition to their normal training.

Data from the previous preseason exclusive of any sled training was used as a control (including the same ($n=5$) and different ($n = 6$) players to intervention (age 18.9 ± 1.3 years, BM 97.6 ± 14.5 kg, height 183 ± 6 cm).

Individual sled loads were determined at the beginning of preseason via sprint load-velocity profiling, using 0% (40-m), 60% (30-m) and 120% (20-m) BM as external loads and methods similar to previous research (Cross et al., 2017). Subsequently, players completed 2 sets of 4 (week 1), 5 (weeks 2–3) or 6 (week 4) 20-m heavy sled sprints (75–87% BM) on 2 non-consecutive days. Between- sprint and set rests were 3 and 5 min respectively.

Linear mixed models with random effects were used to examine the pre–post intervention–control differences in linear sprint times (10-, 20-, 30- and 40-m, unloaded) whilst adjusting for baseline value and training load (derived from session ratings of perceived exertion) accumulated outside the intervention sessions. Standard deviations (SDs) for individual differences in response to the intervention (vs control) were also estimated along with the number of true responders to the intervention ($\geq 75\%$ probability that the observed change $>$ control group pre–post typical error and smallest worthwhile change [SWC]).

Conclusions

Four weeks of heavy sled training improves 10-m sprint time in rugby union players, with substantial individual responses apparent. No substantial effects were evident for sprint times greater than 10-m—a finding that may be explained by the specificity of training-induced adaptations. Whether these improvements are maintained beyond the intervention period and to what extent non-responders can be explained requires further investigation.

Findings

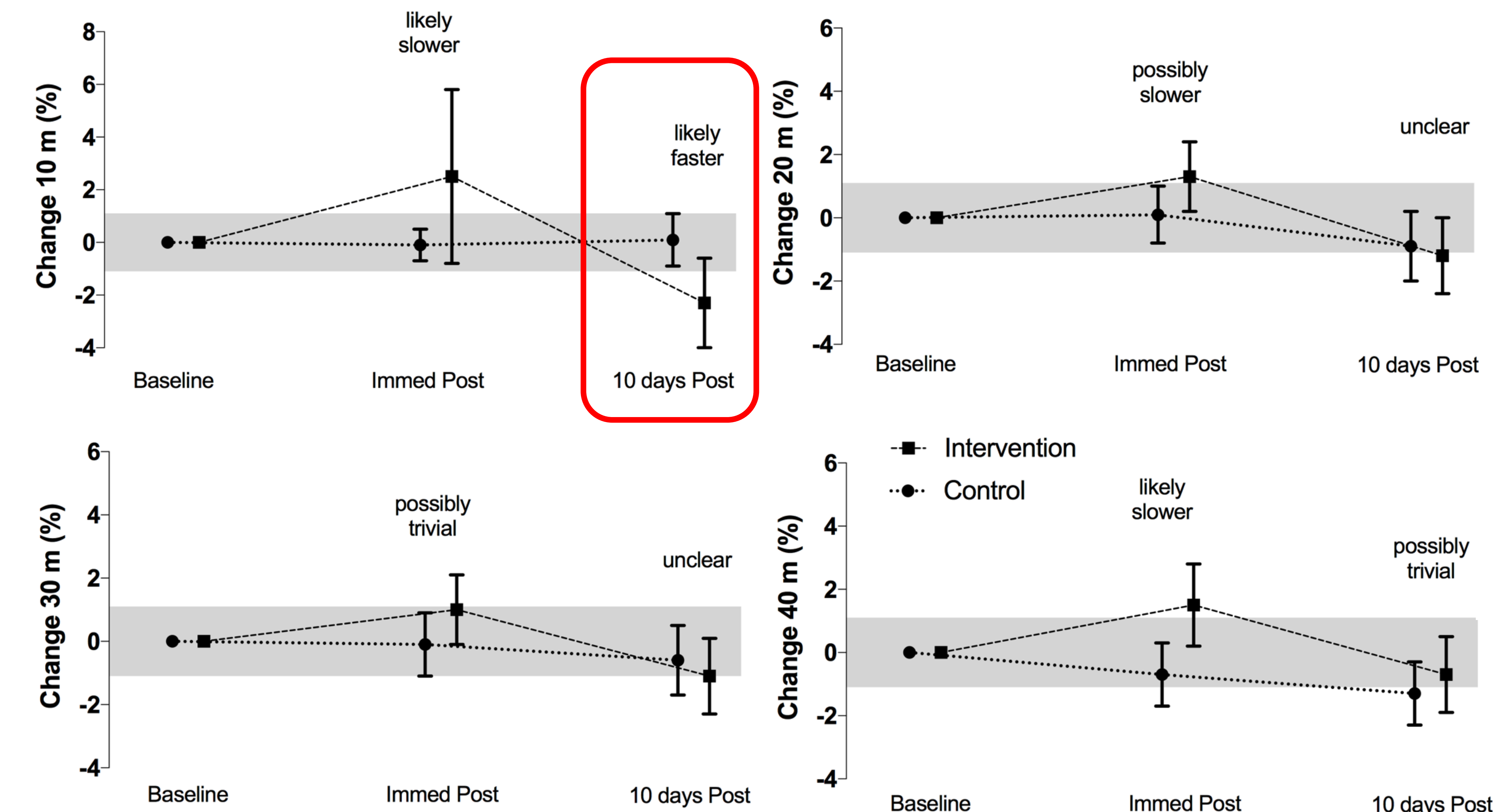


Figure 1: Pre-post intervention-control differences in 10-, 20-, 30- and 40-m time immediately and 10-days following the 4-week training blocks.

Individual response SDs were moderate for 10- (3.3%; $\pm 4.0\%$) and 40-m (-3.9; ± 3.3), and small for 20- (-1.3; ± 3.6) and 30-m (-1.7; ± 3.5). The number of true and substantial responders to the intervention were 5, 1, 2 and 0 for 10-, 20-, 30- and 40-m times.